Effective Health Care

Models of Prenatal Care in Low Risk Pregnant Women

Results of Topic Selection Process & Next Steps

The nominator, the American College of Obstetricians and Gynecologists (ACOG), is interested in a new systematic review on the models of prenatal care in low risk pregnant women in order to issue its member practitioners new clinical recommendations. Specifically, ACOG is interested in the effectiveness of models for prenatal and postpartum appointment scheduling, models of prenatal care and whether those models increase utilization of prenatal care resources, if the type of prenatal care provider has any impact on birth outcomes, and what the impact of telemedicine is on birth outcomes.

We found a total of nine Cochrane reviews and five other systematic reviews pertinent to this topic. The entire scope of the nomination is covered by five of these reviews. Therefore, a new review would be duplicative of existing products. No further activity on this topic will be undertaken by the Effective Health Care (EHC) Program.

Topic Brief

Topic Name: Models of Prenatal Care in Low Risk Pregnant Women

Topic #: 0724

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Conflict of Interest: The authors do not have any affiliations or financial involvement that conflicts with the material presented in this report.

Summary of Key Findings

- Appropriateness and importance: The nomination is both appropriate and important.
- Duplication: An AHRQ systematic review on the topic would be duplicative. The scope of the nomination is covered by five systematic reviews.[1-5] We identified 14 evidence reviews published in the last five years covering the scope of the nomination. Of these 14 results, 9 are Cochrane reviews. Five evidence reviews[1-3,6,7] examine models for prenatal care appointment scheduling, and two[2,8] examine models for postpartum care appointment scheduling. Six evidence reviews[1-4,9,10] examine models of prenatal care, with four[2,3,7,9] doing subgroup analyses. Five reviews[3,7,9,11,12] examine resource utilization within certain prenatal care models. Three evidence reviews[4,10] stratify by type of prenatal care provider. Three Cochrane reviews[5,13,14] examine tele- and electronic-medicine and its effect on birth outcomes.

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Introduction

Receiving prenatal care is an important step in ensuring a healthy baby and mother. The main goals of every model of prenatal care are to prevent, identify, and treat any potential complications in the mother and the baby and to provide counseling and guidance regarding pregnancy, childbirth, and future pregnancies. While every health system may have different names for their models of prenatal care, the main models are standard individual care (individual care between the woman and their obstetrician or family physician), group (or Centering) care, and Midwife-led care. Each of these models is commonly used in the United States, and has their own set of pros and cons. Although prenatal care has been practiced in the US for over 100 years, there is uncertainty regarding the optimal timing and frequency of visits, the comparative effectiveness of individual vs. group care, and other components of care models.

Topic nomination #0724 was received on October 31, 2016. It was nominated by the American College of Obstetricians and Gynecologists (ACOG). After discussion with the nominator, we combined two of the proposed key questions into one (KQ 1), and defined the models of interest, rather than leaving it open to any prenatal care model. For the purposes of this nomination we have defined "ACOG routine care" by the frequency of visits: every 4 weeks until week 28 of pregnancy, every 2 weeks until week 36, weekly visits thereafter until delivery, and a final visit at 6 weeks after delivery.[15] Telemedicine has been defined broadly to be inclusive of any type of electronic communication between any providers and between a provider and the patient. The key questions for this nomination are:

Key Question 1. For low risk women, what visit schedule (including timing, number, and interval between visits) is associated with the best outcomes for:

a. Prenatal visits
b. Postpartum visits

Key Question 2. What model(s) of prenatal care are associated with the best outcomes?

a. Does this model change based on patient characteristics (eg, age, weight, race/ethnicity)?

Key Question 3. What care models increase appropriate utilization of prenatal care resources?

Key Question 4. Does the type of prenatal care provider (eg, ob-gyn, midwife, nurse practitioner, family physician) impact outcomes?

Key Question 5. What is the impact of telemedicine prenatal care on outcomes?

To define the inclusion criteria for the key questions we specify the population, interventions, comparators, and outcomes of interest. See Table 1.

Table 1. Key Question and PICOS

Key Questions	1. For low risk women, what visit schedule, including timing, number, and interval of visits, is most associated with the best outcomes for: a. Prenatal visits b. Postpartum visits	2. What model(s) of prenatal care are associated with the best outcomes? a. Does this model change based on patient characteristics (eg, age, weight, race/ethnicity)?	3. What care models increase appropriate utilization of prenatal care resources?	4. Does the type of prenatal care provider (eg, ob-gyn, midwife, NP, family physician) impact outcomes?	5. What is the impact of telemedicine prenatal care on outcomes?
Population	Pregnant women at low risk for complications, postpartum women who delivered with no major complications	Pregnant women at low risk for complications	Pregnant women at low risk for complications	Pregnant women at low risk for complications	Pregnant women at low risk for complications
Interventions	• Standard appointment model: visit schedule: approx. 14 visits-- every 4 weeks up to 28-32 weeks of gestation, every 2 weeks up to 36 weeks, weekly until birth • Focused appointment model: appointments every 6 weeks • Group care (Centering) appointment model: 10 appointments each 90-120 minutes with 8-12 other women	• Individual care: eg, obstetrician-led, family doctor-led • Group care • Midwife-led continuity model: midwife is the lead professional in the planning, organization and delivery of care given to a woman from initial booking to the postnatal period • Case-load model: one midwife carrying responsibility for a defined caseload of women in partnership with a midwife partner • Medical-led model: midwives provide a significant amount of care but are not autonomous in their practice	• Individual care • Group care • Midwife-led continuity model, • Case-load model • Medical-led model	Prenatal care delivered by one type of prenatal care provider	Telemedicine (any remote medical consultation or communication) (in addition to usual care)
Comparators	ACOG routine care (every four weeks for the first 28 weeks, every 2 weeks until 36 weeks, and weekly until birth)	ACOG routine care, delivered by an obstetrician	ACOG routine care	Prenatal care delivered by another type of prenatal care provider	Usual care without telemedicine
Outcomes	Uncomplicated pregnancy, absence of gestational hypertension and diabetes, live-birth, term birth, birth weight appropriate for gestational age, postpartum recovery without major physical complications	Uncomplicated pregnancy, absence of gestational hypertension and diabetes, live-birth, term birth, birth weight appropriate for gestational age	Attending scheduled appointments, completing prenatal care, access to appropriate and desired prenatal testing (eg, blood tests, ultrasounds, antenatal monitoring), social and psychological well-being, other prenatal care resources	Healthy pregnancy, absence of gestational hypertension and diabetes, live-birth, term birth, birth weight appropriate for gestational age	Healthy pregnancy, absence of gestational hypertension and diabetes, live-birth, term birth, birth weight appropriate for gestational age
Setting	Outpatient care	Outpatient care	Outpatient care	Outpatient care	Outpatient

Abbreviations: ACOG=American College of Obstetricians and Gynecologists; NP=Nurse Practitioner

Methods

To assess topic nomination *#0724 Models of Prenatal Care in Low Risk Pregnant Women* for priority for a systematic review or other AHRQ EHC report, we used a modified process based on established criteria. Our assessment is hierarchical in nature, with the findings of each step in our assessment determining the need for further evaluation of the next step. Details related to our assessment are provided in Appendix A.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

Appropriateness and Importance

We assessed the nomination for appropriateness and importance (see Appendix A).

Desirability of New Review/Duplication

We searched for high-quality, completed or in-process evidence reviews pertaining to the key questions of the nomination. Table 2 includes the citations for the reviews that were determined to address the key questions. Appendix B includes the list of the sources searched and potentially relevant titles identified by our research librarian.

Compilation of Findings

We constructed a table outlining the selection criteria as they pertain to this nomination (see Appendix A).

Results

Appropriateness and Importance

This is an appropriate and important topic. According to the Centers for Disease Control and Prevention (CDC), prenatal care can reduce the risk of the most common pregnancy-related complications, such as anemia and preterm birth.[16] A baby whose mother did not receive prenatal care is three times as likely to be born at a low birth-weight.[16]

Desirability of New Review/Duplication

A new evidence review examining models of prenatal care in low risk women would be duplicative of pre-existing systematic reviews. All of the key questions are covered by five evidence reviews[1-5] (three of which are Cochrane reviews[1,4,5]). Two Cochrane reviews (one in 2015[1] and one in 2013[2]) examine group and standard/traditional prenatal care models, including appointment schedules pre- and post-partum, on healthy pregnancy-related outcomes (KQs 1a, 1b, 2, and 2a).[1,2] A 2016 systematic review examined different maternity care coordination systems and the health resources utilized by its patients (KQ 3).[3] A 2016 Cochrane review examined KQ 4, the use of a midwife versus obstetrician, family doctor, and shared models of care (where the health professional providing care changes throughout).[4] A 2013 Cochrane review examined telemedicine for women during pregnancy through six weeks postpartum (KQ 5).[5]

We identified 14 reviews in total (nine Cochrane[1,4-6,8,11-14] and five others[2,3,7,9,10]) See *Table 2, Duplication* for the full list of systematic review citations that were determined to address the key question.

Table 2. Key question with the identified corresponding evidence reviews

Key Question	Duplication (Completed or In-Process Evidence Reviews)
1a: Prenatal visit schedule	Total number of completed or in-process evidence reviews: 5 • Cochrane: 2[1,6] • Other: 3[2,3,7]
1b: Postpartum visit schedule	Total number of completed or in-process evidence reviews: 2 • Cochrane: 1[8] • Other: 1[2]
2: Models of prenatal care	Total number of completed or in-process evidence reviews: 6 • Cochrane: 2[1,4] • Other: 4[2,3,9,10]
2a: Models of prenatal care—subgroups	Total number of completed or in-process evidence reviews: 4 • Other: 4[2,3,7,9]
3: Models of prenatal care on resource utilization	Total number of completed or in-process evidence reviews: 5 • Cochrane: 2[11,12] • Other: 3[3,7,9]
4: Type of prenatal care provider	Total number of completed or in-process evidence reviews: 2 • Cochrane: 1[4] • Other: 1[10]
5: Telemedicine	Total number of completed or in-process evidence reviews: 3 • Cochrane: 3[5,13,14]

Summary of Findings

- Appropriateness and importance: The nomination is both appropriate and important.
- Duplication: An AHRQ systematic review on the topic would be duplicative. The scope of the nomination is covered by five systematic reviews.[1-5] We identified 14 evidence reviews published in the last five years covering the scope of the nomination. Of these 14 results, 9 are Cochrane reviews. Five evidence reviews[1-3,6,7] examine prenatal care appointment scheduling, and two[2,8] examine postpartum care appointment scheduling. Six evidence reviews[1-4,9,10] examine models of prenatal care, with four[2,3,7,9] doing subgroup analyses. Five reviews[3,7,9,11,12] examine resource utilization within certain prenatal care models. Two evidence reviews[4,10] stratify by type of prenatal care provider. Three Cochrane reviews[5,13,14] examine tele- and electronic-medicine and their effect on birth outcomes.

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Appendices

Appendix A: Selection Criteria Summary

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Selection Criteria	Supporting Data
1. Appropriateness	
1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.?	Yes, this topic represents a health care drug and intervention available in the U.S.
1b. Is the nomination a request for a systematic review?	Yes, this topic is a request for a systematic review.
1c. Is the focus on effectiveness or comparative effectiveness?	Yes, the focus of this review is on effectiveness.
1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes, it is biologically plausible. Yes, it is consistent with what is known about the topic.
2. Importance	
2a. Represents a significant disease burden; large proportion of the population	Yes, this topic represents a large portion of the population. There were almost 4 million births in the United States in 2015.[17]
2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population	Yes, this topic affects health care decision making for a large, vulnerable population.
2c. Represents important uncertainty for decision makers	Yes, this topic represents important uncertainty for decision makers.
2d. Incorporates issues around both clinical benefits and potential clinical harms	No, this nomination did not specifically inquire about harms.
2e. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	Yes, this topic represents high costs due to common use.[17]
3. Desirability of a New Evidence Review/Duplication	
3. Would not be redundant (i.e., the proposed topic is not already covered by available or soon-to-be available high-quality systematic review by AHRQ or others)	An AHRQ systematic review on this topic would be redundant. 14 evidence reviews were identified that meet inclusion criteria.[1-14] The scope of the key questions and PICOS were covered in full by five recent systematic reviews,[1-5] of which, three are Cochrane reviews.[1,4,5]